

[0023] In a different example of the garment in accordance with the present invention, depending on the fabric material used, the seams 120 may be created without the use of an adhesive tape. For example if the fabric already has adhesive properties, or is weldable by heat, pressure, or ultrasonic energy, the seams 120 may be created and perforated without the use of adhesive tape.

[0024] FIG. 2A is a close up of a seam 120. The seams 120 formed as described above, may be presented in a straight line (as shown), in a curved line, in a wavy line, or any other shape that may be useful, for example in forming a chamber, and being visually appealing at the same time. The seams 120 may be mechanically perforated by using a welding and cutting wheel assembly, or may be perforated with a laser, an ultrasonic cutter, and/or a mechanical cutter to form the plurality of perforations 110. The plurality of perforations 110 may be of the same size, or different sizes (as shown). The plurality of perforations may be of different shapes such as circular (as shown), triangular, rectangular, or any other shape desired. The plurality of perforations 110 may be evenly spaced in a straight line, curvy line, zig-zag, or any other suitable shape for placing the plurality of perforations 110 on seams 120, where the plurality of perforations 110 extend through the seams 120. Additionally, depending on the size of the individual perforations, there may be multiple rows of perforations on each seam. The plurality of perforations 110 may be presented continuously along the seams 120 (as shown), or may be presented intermittently along seams 120, or may be strategically placed only in the areas of high perspiration such as along the back of a wearer, under the arms of a wearer, between the legs of a wearer, etc. The size and frequency of the individual perforations 110 may be determined to provide optimal ventilation and breathability, while still maintaining the structural integrity of the fabric, and maintaining a high level of thermal insulation. For example, the width size of each individual perforation in the plurality of perforations 110 may range anywhere from 0.1 mm-5 mm, and the spacing between each individual perforation measured from edge to edge, may range anywhere from 0.5 mm-10 mm. Other sizes and/or spacing of perforations may be used without departing from the scope of the present invention.

[0025] FIG. 2B is a close up of a seam 220. The seams 220 formed as described above, may be presented in a straight line (as shown), in a curved line, in a wavy line, or any other shape that may be useful, for example in forming a chamber, and being visually appealing at the same time. The seams 220 may be mechanically perforated by using a welding and cutting wheel assembly, may be perforated with a laser, an ultrasonic cutter, and/or a mechanical cutter, or may be perforated in any other way to form the plurality of perforations 210. The plurality of perforations 210 may be of the same size (as shown), or different sizes. The plurality of perforations may be of different shapes such as circular (as shown), triangular, rectangular, or any other shape desired. The plurality of perforations 210 may be evenly spaced in a straight line, curvy line, zig-zag, or any other suitable shape for placing the plurality of perforations 210 on seams 220, where the plurality of perforations 210 extend through the seams 220. Additionally, depending on the size of the individual perforations, there may be multiple rows of perforations on each seam. For example, as seen in FIG. 2B, there may be three rows of perforations 210, wherein the perforations 210 of the middle row may or may not be offset

from the perforations of the first and third rows. In the case where the perforations 210 of the middle row are offset (as shown), the offset distance may range anywhere from 0 mm-10 mm, or any other distance suitable for the performance and design desired in the final product. While in the present example, only the middle row is offset, all or none of the rows may be offset or, if more rows of perforations are present, different rows may be chosen to be offset. The plurality of perforations 210 may be presented continuously along the seams 220 (as shown), or may be presented intermittently along seams 220, or may be strategically placed only in the areas of high perspiration such as along the back of a wearer, under the arms of a wearer, between the legs of a wearer, etc. The size and frequency of the individual perforations 210 may be determined to provide a desired level of ventilation and breathability, while still maintaining the structural integrity of the fabric and maintaining a desired level of thermal insulation. For example, a desired amount of ventilation, breathability, structural integrity, and thermal insulation may be achieved in a garment using light fabric/textile and down fill with a width size of each individual perforation in the plurality of perforations 210 ranging anywhere from 0.1 mm-5 mm, and the spacing between each individual perforation measured from edge to edge ranging anywhere from 0.5 mm-10 mm, although other sizes and configurations are within the scope of the present invention.

[0026] One way of measuring the amount of breathability of a garment, such as garments in accordance with the present invention, may be by performing a hot-plate transfer test, which allows for measurement of the resistance to evaporative transfer of a textile or garment. The lower the resistance number obtained from the test, the less resistance to evaporation there is and therefore, the more evaporation that occurs through the garment in a given amount of time. Garments in accordance with the present invention may be shown to have lower resistance to evaporative transfer than un-perforated garments in hot-plate transfer testing.

[0027] The garment construction may become more apparent in reference to FIG. 3, where an angled cross-sectional view 300 of a small section of the garment with all the novel features, is shown. The garment in accordance with the present invention may be constructed from a first inner panel 310 and a second outer panel 320. The seams 120 and chambers 130 may be created as described above in reference to FIGS. 1A and 1B, where the chambers 130 are created between pairs of seams 120 between the first inner panel 310 and the first outer panel 320. The plurality of perforations 110 extend through the first inner panel 310 and the second outer panel 320 to provide ventilation and moisture management by allowing moisture vapor from perspiration to escape to the outer environment when the vented cold weather garment is in an as-worn configuration. The chambers 130 may then be filled with a fill 330, such as down or synthetic fibers.

[0028] Now, in reference to FIG. 4, a front view of a different cold weather garment 400 in accordance with the present invention is provided. Like the cold weather garment 100 of FIGS. 1A and 1B, the vented cold weather garment 100 in FIG. 4 may be made from conventional synthetic or natural fabrics. The fabrics may be water repellent and down proof, or alternatively such as in the case of ultra-light fabrics (29 g/m² or lower) and light weight fabrics (89 g/m²-30 g/m²), the fabrics may need to be treated with